

### Trend Study 17-15-02

Study site name: Island Boat Camp.

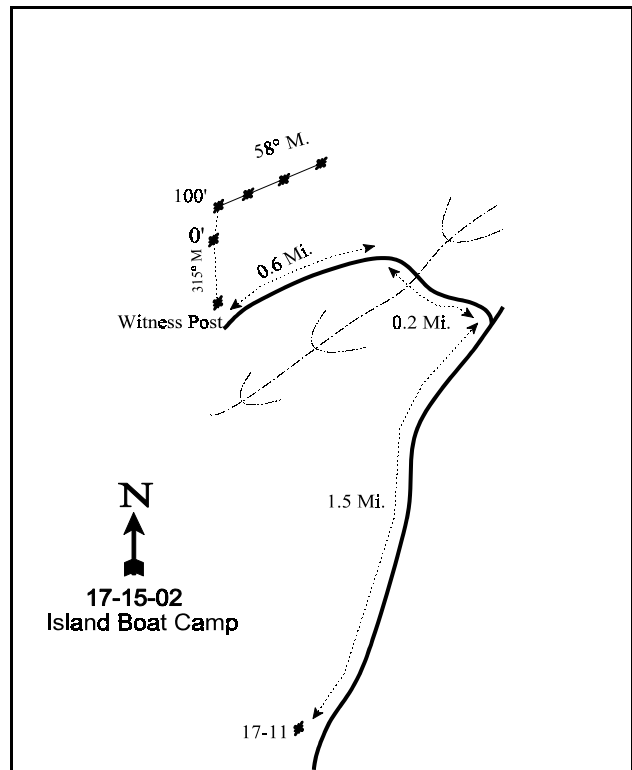
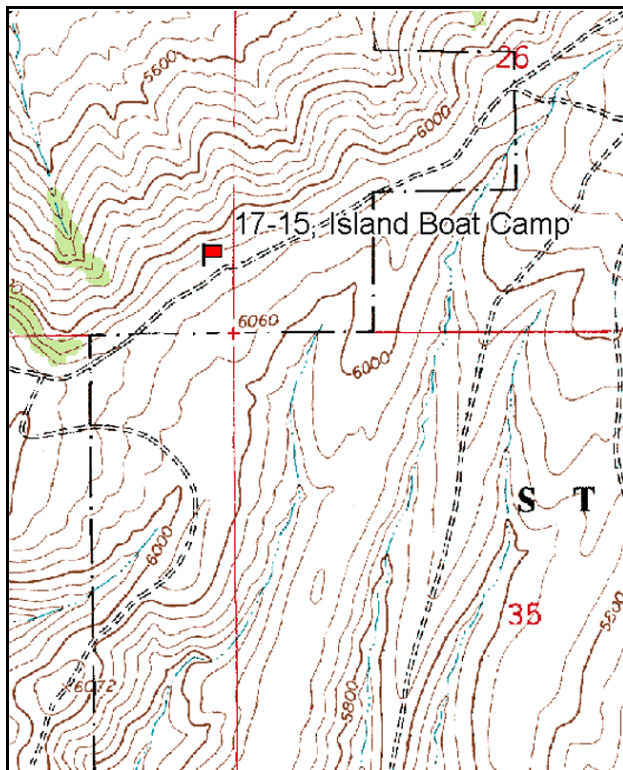
Vegetation type: Mountain Brush.

Compass bearing: frequency baseline 1 degrees magnetic.

Frequency belt placement: line 1 (11 & 95ft), line 2 (71ft), line 3 (34ft), line 4 (59ft). Rebar: belt 1 on 2ft., belt 2 on 1ft., and belt 3 on 1ft.

### LOCATION DESCRIPTION

Beginning at the intersection of U.S. 189 and the Wallsburg turnoff, proceed 0.50 miles towards Wallsburg to an intersection. Turn left at the intersection and proceed northerly for just over 1 mile passing through two DWR gates to another intersection, and turn right. Proceed 0.05 miles to a small rock pile on the left(i.e., east) side of the road which marks study #17-11, Wallsburg Turn. Continue down the road traveling north passing a left fork for 1.5 miles to a fork. Bear left and go 0.2 miles thru a drainage to another ridge top and bear left. Drive along the ridge 0.6 miles to a witness post on the north side of the road. 0-foot stake marked with a browse tag #415.



Map Name: Charleston

Diagrammatic Sketch

Township 4S, Range 4E, Section 26

GPS: NAD 27, UTM 12S 4476050 N 459965 E

## DISCUSSION

### Island Boat Camp - Trend Study No. 17-15

This study is located on a ridge overlooking both Wallsburg and the Island Boat Camp. It is representative of the unburned mountain brush type that formerly was so prevalent on better quality sites in the western part of the Wallsburg-Deer Creek Reservoir winter range. Virtually all of the winter range to the north, east and south of this site was burned in 1976. The study begins on the ridge top and extends onto a slight (3-5%) northwest slope. Elevation is approximately 6,000 feet. Big game use, as evidenced by levels of hedging on the principal browse and frequency of deer and elk pellet groups, is moderately high. Pellet group transect data taken in 2002 estimated 125 deer days use/acre (309 ddu/ha) and 31 elk days use/acre (78 edu/ha). Most of the deer and elk pellet groups appear to be from winter use, but about 15% are from spring use. Cattle also use the area but not excessively.

Soils are deep and derived from limestone. Effective rooting depth is estimated at over 17 inches. The average soil temperature at 18 inches in depth was 50.2°F in 1996. Textural and chemical analysis indicates a clay loam that is slightly alkaline in reactivity (pH of 7.8). Rock cover is sparse on the surface and evenly distributed throughout the profile. Vegetation and litter cover are high and well distributed over the site, resulting in low soil erosion. Bare soil is low averaging about 8% in 1996 and 2002. A soil erosion assessment done in 2002 gave a stable condition rating.

The browse component is productive and diverse with several preferred species. Mountain big sagebrush, serviceberry, and antelope bitterbrush are the prominent forage species for big game. Mountain big sagebrush provides just over 10% canopy cover. Density data shows a slow but steady decline since 1983, with an estimated density of 1,740 plants/acre in 2002. Percent decadence has been moderate in most years. It increased from 27% in 1996 to 38% in 2002. Vigor was normal on all but about 10% of the population in 1996 and 2002. The highest level of poor vigor was in 1989 at 29%. The majority of the mountain big sagebrush were moderately hedged in 1983 and 1989, with heavy use slightly increasing in 1996 and 2002. Young plants occurred in moderately low numbers during the last three readings and numbered 100 plants/acre in 2002. Annual leader growth for sagebrush averaged 2.2 inches in 2002.

Antelope bitterbrush is a mature population with no seedling or young classified in 1996 or 2002. The rate of decadency has fluctuated from a high of 40% in 1989 to a low of 13% in 1996. Decadence was estimated at 29% in 2002, the same level as the initial sampling in 1983. Utilization has been moderate to heavy during all readings. Annual leader growth of bitterbrush averaged 2.4 inches in 2002.

The serviceberry population had an estimated density of 700 plants/acre in 2002, a 43% decrease since 1996. Most of the decline is due to fewer young plants being sampled in 2002. Decadence increased from 7% in 1996 to 29% in 2002. This level is still much lower than what was reported in both 1983 and 1989. Utilization has been moderate to heavy in all readings. Serviceberry vigor greatly improved in 1996 and 2002 compared to the first two readings.

The most abundant species is the unutilized stickyleaf low rabbitbrush. Population density was estimated at 6,060 plants/acre in 1996, decreasing to 4,760 plants/acre in 2002. Other browse species present on the site include snowberry, gray horsebrush, and broom snakeweed.

The herbaceous understory is abundant and diverse. Nine perennial grass species were sampled in 2002 with bluebunch wheatgrass, mutton bluegrass, and Sandberg bluegrass being the most abundant. Other important grasses sampled include Indian ricegrass, crested wheatgrass, and onion grass. Utilization on grasses was not apparent during the 2002 reading. Sum of nested frequency for perennial grasses has increased with every reading since 1983. Although present, cheatgrass is not very abundant on this site. An abundance of perennial grasses is the best tool to keep cheatgrass in check.

Perennial forbs are much more abundant and diverse on this site compared to others in the area. Sum of nested frequency for perennial forbs increased with every reading from 1983 to 1996, but decreased by 40% in 2002. A decline in forbs has been documented on most other studies in 2002 and is the result of the drought conditions. Even with the decrease in frequency, several important species are present including sulfur eriogonum, pale agoseris, sego lily, tapertip hawksbeard, spring parsley, redroot eriogonum, lobeleaf groundsel, and violet. Annual forbs also declined in sum of nested frequency in 2002 and include little flower collinsia, pale alyssum, and Douglas knotweed.

#### 1983 APPARENT TREND ASSESSMENT

Soil and vegetation both appear stable. This is a highly productive site which, when compared to similar burned areas, gives one an appreciation of what was lost from the 1976 fire. A possible use for this study might be as a "reference area" from which management objectives for the burned areas might be derived.

#### 1989 TREND ASSESSMENT

The soil trend is up slightly. Vegetation and litter cover remain abundant, and bare soil declined to 9%. Browse trend is stable. Big sagebrush declined in density and recruitment, and has increased decadence. However, serviceberry and bitterbrush both increased in density, and have high recruitment from young plants. There is ample browse forage available. The herbaceous understory has an upward trend as sum of nested frequency of perennial grasses and forbs increased. There is excellent production and diversity of forage. More sign of big game use was observed here than on any other study site around Wallsburg.

##### TREND ASSESSMENT

soil - up slightly (4)

browse - stable (3)

herbaceous understory - up (5)

#### 1996 TREND ASSESSMENT

Soil trend is stable with litter and bare ground cover values remaining nearly constant. Rock and pavement cover declined since 1989 to values similar to those reported in 1983. The browse trend is also stable. The key species show improvements in vigor and lower decadence. Mountain big sagebrush density has slowly declined since 1983 and this trend should continue to be monitored in the future. The stickyleaf low rabbitbrush and broom snakeweed densities should also be monitored for possible displacement of the more palatable forage species. The sum of nested frequency for both grasses and forbs has increased since 1989. This indicates an upward trend with high diversity.

##### TREND ASSESSMENT

soil - stable (3)

browse - stable (3)

herbaceous understory - up (5)

## 2002 TREND ASSESSMENT

Soil trend is stable. Bare soil slightly declined as did litter, but vegetation cover increased. Herbaceous vegetation is abundant and well distributed over the site effectively limiting erosion. Trend for browse is slightly down. The key species show slightly declining populations, inadequate or decreasing recruitment, and increased decadence. Changes in these key parameters since 1996 is due mostly to the drought experienced in 2002 and should improve with a return of normal precipitation. The herbaceous species have a slightly downward trend as well. Drought in 2002 especially effected the forbs which decreased in sum of nested frequency. Perennial grasses increased slightly in nested frequency, but these are not enough to offset the decline in forbs.

### TREND ASSESSMENT

soil - stable (3)

browse - slightly down (2)

herbaceous understory - slightly down (2)

### HERBACEOUS TRENDS --

Herd unit 17 , Study no: 15

Type	Species	Nested Frequency				Quadrat Frequency				Average Cover %	
		'83	'89	'96	'02	'83	'89	'96	'02	'96	'02
G	Agropyron cristatum	a-	bc8	ab8	c25	-	5	3	10	.06	1.82
G	Agropyron spicatum	a104	a119	b178	b205	42	48	60	74	6.32	10.72
G	Bromus tectorum (a)	-	-	b67	a7	-	-	22	4	.68	.02
G	Festuca ovina	b15	a-	a-	a-	7	-	-	-	-	-
G	Melica bulbosa	-	-	4	7	-	-	2	4	.06	.19
G	Oryzopsis hymenoides	19	46	24	32	11	22	11	14	.91	1.35
G	Poa spp.	-	-	-	15	-	-	-	4	-	1.52
G	Poa fendleriana	a103	b172	b198	b172	41	69	69	61	5.01	4.99
G	Poa pratensis	a-	b12	a5	a7	-	5	2	2	.06	.18
G	Poa secunda	a-	b30	b60	c125	-	16	27	47	1.27	2.52
G	Sitanion hystrix	-	-	-	-	-	-	-	-	-	.00
G	Stipa comata	3	5	-	-	1	2	-	-	-	-
Total for Annual Grasses		0	0	67	7	0	0	22	4	0.68	0.01
Total for Perennial Grasses		244	392	477	588	102	167	174	216	13.72	23.32
Total for Grasses		244	392	544	595	102	167	196	220	14.40	23.34
F	Agoseris glauca	a5	a-	c141	b36	2	-	57	16	.95	.23
F	Alyssum alyssoides (a)	-	-	b105	a19	-	-	38	9	.18	.04
F	Allium spp.	a9	b70	a31	b93	5	35	16	42	.08	.36
F	Antennaria rosea	a-	b21	b40	b32	-	10	18	12	.52	.64
F	Arabis spp.	5	-	-	-	3	-	-	-	-	-
F	Astragalus cibarius	a-	a-	c93	b50	-	-	37	23	2.68	.66

T y p e	Species	Nested Frequency				Quadrat Frequency				Average Cover %	
		'83	'89	'96	'02	'83	'89	'96	'02	'96	'02
F	<i>Astragalus convallarius</i>	13	9	3	11	6	5	3	6	.01	.05
F	<i>Balsamorhiza sagittata</i>	a18	ab33	c85	bc56	9	18	37	24	4.46	4.77
F	<i>Castilleja linariaefolia</i>	-	3	2	4	-	1	2	2	.03	.06
F	<i>Calochortus nuttallii</i>	ab7	b15	ab13	a3	5	9	6	1	.03	.00
F	<i>Castilleja</i> spp.	-	-	3	-	-	-	1	-	.03	-
F	<i>Chaenactis douglasii</i>	-	-	1	-	-	-	1	-	.03	-
F	<i>Cirsium</i> spp.	2	-	3	1	1	-	1	1	.00	.03
F	<i>Collomia linearis</i> (a)	-	-	b30	a3	-	-	17	2	.11	.01
F	<i>Comandra pallida</i>	ab24	b27	ab22	a3	10	15	10	3	.10	.01
F	<i>Collinsia parviflora</i> (a)	-	-	198	216	-	-	72	74	.70	1.07
F	<i>Crepis acuminata</i>	a-	bc4	c95	b26	-	4	43	12	.84	.55
F	<i>Cryptantha</i> spp.	2	-	-	-	1	-	-	-	-	-
F	<i>Cymopterus longipes</i>	-	-	b70	a29	-	-	36	15	.33	.12
F	<i>Cynoglossum officinale</i>	-	-	3	-	-	-	1	-	.00	-
F	<i>Delphinium nuttallianum</i>	a-	a-	b41	a3	-	-	18	1	.11	.03
F	<i>Erigeron divergens</i>	-	-	-	10	-	-	-	4	-	.24
F	<i>Eriogonum ovalifolium</i>	-	-	-	3	-	-	-	1	-	.00
F	<i>Erigeron pumilus</i>	a-	ab6	b23	b18	-	3	10	8	.07	.14
F	<i>Eriogonum racemosum</i>	25	25	14	16	12	15	7	7	.06	.16
F	<i>Eriogonum umbellatum</i>	a74	a80	b143	a107	30	33	58	50	2.49	2.04
F	<i>Galium</i> spp.	-	-	3	-	-	-	2	-	.01	-
F	<i>Hackelia patens</i>	5	16	20	10	3	9	10	5	.07	.05
F	<i>Lactuca serriola</i>	2	-	-	-	1	-	-	-	-	-
F	<i>Linum lewisii</i>	a3	a3	b21	a13	2	2	11	5	.22	.13
F	<i>Lomatium triternatum</i>	a-	b24	b17	a-	-	11	9	-	.04	-
F	<i>Lupinus argenteus</i>	21	34	43	19	10	15	19	9	1.00	.43
F	<i>Machaeranthera canescens</i>	ab11	b22	a3	a-	5	11	1	-	.00	-
F	<i>Machaeranthera</i> spp	5	-	-	-	3	-	-	-	-	-
F	<i>Mertensia</i> spp.	a-	a-	b8	a-	-	-	5	-	.05	-
F	<i>Microsteris gracilis</i> (a)	-	-	-	6	-	-	-	2	-	.01
F	<i>Orthocarpus</i> spp. (a)	-	-	b9	a-	-	-	5	-	.05	-
F	<i>Penstemon humilis</i>	-	3	-	-	-	1	-	-	-	-
F	<i>Phlox longifolia</i>	a-	b90	c134	c144	-	47	56	59	.30	.86
F	<i>Polygonum douglasii</i> (a)	-	-	b19	a3	-	-	7	1	.03	.00
F	<i>Ranunculus testiculatus</i> (a)	-	-	3	-	-	-	1	-	.00	-
F	<i>Senecio multilobatus</i>	b23	a6	ab9	a8	13	3	7	4	.04	.04
F	<i>Taraxacum officinale</i>	-	-	1	4	-	-	1	2	.00	.03
F	<i>Tragopogon dubius</i>	23	23	27	29	11	15	13	14	.09	.19
F	<i>Vicia americana</i>	-	6	-	-	-	2	-	-	-	-

T y p e	Species	Nested Frequency				Quadrat Frequency				Average Cover %	
		'83	'89	'96	'02	'83	'89	'96	'02	'96	'02
F	Viola spp.	a-	a-	b <sup>103</sup>	a-	-	-	42	-	1.35	-
Total for Annual Forbs		0	0	364	247	0	0	140	88	1.09	1.13
Total for Perennial Forbs		277	520	1215	728	132	264	538	326	16.08	11.90
Total for Forbs		277	520	1579	975	132	264	678	414	17.18	13.04

Values with different subscript letters are significantly different at alpha = 0.10

#### BROWSE TRENDS --

Herd unit 17 , Study no: 15

T y p e	Species	Strip Frequency		Average Cover %	
		'96	'02	'96	'02
B	Amelanchier alnifolia	41	30	3.92	4.71
B	Artemisia tridentata vaseyana	62	56	10.25	10.47
B	Chrysothamnus viscidiflorus viscidiflorus	81	81	7.44	7.40
B	Gutierrezia sarothrae	10	6	.34	.45
B	Purshia tridentata	27	27	5.14	7.72
B	Symphoricarpos oreophilus	18	19	1.90	3.75
B	Tetradymia canescens	8	7	.03	.15
Total for Browse		247	226	29.05	34.68

#### CANOPY COVER -- LINE INTERCEPT

Herd unit 17 , Study no: 15

Species	Percent Cover	
	'96	'02
Amelanchier utahensis	-	5.58
Artemisia tridentata vaseyana	-	10.25
Chrysothamnus viscidiflorus viscidiflorus	-	7.33
Gutierrezia sarothrae	-	.25
Purshia tridentata	-	7.92
Symphoricarpos oreophilus	-	2.08

#### Key Browse Annual Leader Growth

Herd unit 17 , Study no: 15

Species	Average leader growth (in) '02
Artemisia tridentata vaseyana	2.2
Purshia tridentata	2.4

BASIC COVER --

Herd unit 17 , Study no: 15

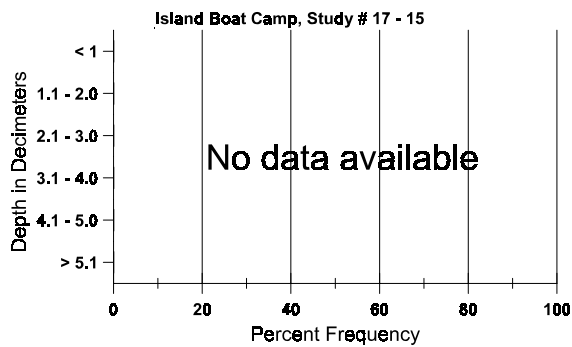
Cover Type	Nested Frequency		Average Cover %			
	'96	'02	'83	'89	'96	'02
Vegetation	381	368	.50	12.00	54.79	60.15
Rock	84	36	1.00	1.25	1.50	.68
Pavement	123	159	2.75	17.25	2.71	4.29
Litter	400	387	75.75	58.75	61.57	55.50
Cryptogams	31	18	.75	1.25	.64	.98
Bare Ground	171	150	19.25	9.50	8.54	7.38

SOIL ANALYSIS DATA --

Herd Unit 17, Study no: 15, Island Boat Camp

Effective rooting depth (in)	Temp °F (depth)	pH	%sand	%silt	%clay	%0M	PPM P	PPM K	dS/m
17.6	50.2 (18.1)	7.6	32.9	33.1	34.0	4.8	12.8	160.0	07

## Stoniness Index



PELLET GROUP FREQUENCY --

Herd unit 17 , Study no: 15

Type	Quadrat Frequency		Pellet Transect	
	'96	'02	Pellet Groups per Acre 02	Days Use per Acre (ha) 02
Rabbit	5	1	-	-
Elk	19	17	409	31 (78)
Deer	35	52	1627	125 (309)
Cattle	1	-	-	-

## BROWSE CHARACTERISTICS --

Herd unit 17 , Study no: 15

A Y G R E		Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Amelanchier alnifolia																		
S	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	89	1	-	-	2	-	-	-	-	-	3	-	-	-	200			3
	96	3	-	-	-	-	-	-	-	-	3	-	-	-	60			3
	02	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	89	4	-	-	2	-	-	1	-	-	5	-	2	-	466			7
	96	12	-	-	8	-	-	-	-	-	20	-	-	-	400			20
	02	1	-	-	5	-	-	-	-	-	6	-	-	-	120			6
M	83	1	3	-	-	-	-	-	-	-	3	1	-	-	266	26	18	4
	89	-	2	1	-	-	-	-	-	-	3	-	-	-	200	47	43	3
	96	5	9	2	12	6	3	-	-	-	37	-	-	-	740	31	40	37
	02	-	3	8	1	3	4	-	-	-	19	-	-	-	380	32	36	19
D	83	-	3	1	-	-	-	-	-	-	-	2	-	2	266			4
	89	-	8	3	1	1	-	-	-	-	4	-	6	3	866			13
	96	1	1	2	-	-	-	-	-	-	4	-	-	-	80			4
	02	-	3	3	-	-	3	-	-	1	8	-	-	2	200			10
X	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	20			1
	02	-	-	-	-	-	-	-	-	-	-	-	-	-	20			1
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'83		75%			13%			25%			+65%							
'89		48%			17%			48%			-20%							
'96		26%			11%			00%			-43%							
'02		26%			54%			06%										
Total Plants/Acre (excluding Dead & Seedlings)												'83	532	Dec:	50%			
												'89	1532		57%			
												'96	1220		7%			
												'02	700		29%			



A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Artemisia tridentata vaseyana																		
Y	83	9	-	-	-	-	-	-	-	-	9	-	-	-	600		9	
	89	3	-	-	-	-	-	-	-	-	3	-	-	-	200		3	
	96	1	-	-	1	-	-	-	-	-	2	-	-	-	40		2	
	02	5	-	-	-	-	-	-	-	-	5	-	-	-	100		5	
M	83	23	6	-	-	-	-	-	-	-	29	-	-	-	1933	24	26	29
	89	13	5	-	1	-	-	-	-	-	16	-	3	-	1266	25	30	19
	96	23	39	7	1	4	-	-	-	-	74	-	-	-	1480	27	43	74
	02	26	12	8	1	2	-	-	-	-	48	1	-	-	980	29	35	49
D	83	2	7	1	-	-	-	-	-	-	10	-	-	-	666			10
	89	7	9	-	-	-	-	-	-	-	7	1	7	1	1066			16
	96	8	13	5	-	2	-	-	-	-	18	-	1	9	560			28
	02	7	16	7	2	-	-	1	-	-	23	-	-	10	660			33
X	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	560			28
	02	-	-	-	-	-	-	-	-	-	-	-	-	-	780			39
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
		'83			27%			02%			00%			-21%				
		'89			37%			00%			29%			-18%				
		'96			56%			12%			10%			-16%				
		'02			34%			17%			11%							
Total Plants/Acre (excluding Dead & Seedlings)												'83	3199	Dec:	21%			
												'89	2532		42%			
												'96	2080		27%			
												'02	1740		38%			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Chrysothamnus viscidiflorus viscidiflorus																		
S	83	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
	89	1	-	-	-	-	-	-	-	-	1	-	-	66			1	
	96	3	-	-	-	-	-	-	-	-	3	-	-	60			3	
	02	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
Y	83	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
	89	2	-	-	-	-	-	-	-	-	1	-	1	133			2	
	96	31	-	-	1	-	-	-	-	-	32	-	-	640			32	
	02	10	-	-	-	-	-	-	-	-	10	-	-	200			10	
M	83	61	-	-	-	-	-	-	-	-	61	-	-	4066	9	9	61	
	89	51	-	-	4	-	-	1	-	-	52	-	4	3733	13	16	56	
	96	246	2	-	23	-	-	-	-	-	271	-	-	5420	12	21	271	
	02	207	-	1	17	-	-	-	-	-	224	-	1	4500	11	17	225	
D	83	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
	89	9	-	-	-	-	-	-	-	-	7	1	1	600			9	
	96	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
	02	2	-	-	1	-	-	-	-	-	3	-	-	60			3	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'83		00%			00%			00%			+ 9%							
'89		00%			00%			09%			+26%							
'96		.66%			00%			00%			-21%							
'02		00%			.42%			.42%										
Total Plants/Acre (excluding Dead & Seedlings)												'83	4066	Dec:	0%			
												'89	4466		13%			
												'96	6060		0%			
												'02	4760		1%			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Gutierrezia sarothrae																		
S	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	5	-	-	-	-	-	-	-	-	5	-	-	-	100		5	
	02	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
Y	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	13	-	-	-	-	-	-	-	-	13	-	-	-	260		13	
	02	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
M	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	96	27	-	-	1	-	-	-	-	-	28	-	-	-	560	8	10	
	02	21	-	1	5	-	-	-	-	-	27	-	-	-	540	6	6	
D	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	5	-	-	-	-	-	-	-	-	5	-	-	-	100		5	
	02	2	-	-	-	-	-	-	-	-	-	-	-	2	40		2	
X	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	60		3	
	02	-	-	-	-	-	-	-	-	-	-	-	-	-	40		2	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'83		00%			00%			00%										
'89		00%			00%			00%										
'96		00%			00%			00%			-37%							
'02		00%			03%			07%										
Total Plants/Acre (excluding Dead & Seedlings)													'83	0	Dec:	0%		
													'89	0		0%		
													'96	920		11%		
													'02	580		7%		

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Purshia tridentata																		
S	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	89	1	-	-	-	-	-	-	-	-	-	1	-	-	66		1	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	02	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
Y	83	4	-	-	-	-	-	-	-	-	4	-	-	-	266		4	
	89	-	4	-	-	-	-	-	-	-	4	-	-	-	266		4	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	02	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
M	83	1	3	2	-	-	-	-	-	-	6	-	-	-	400	43	54	6
	89	-	5	-	-	-	-	-	-	-	5	-	-	-	333	38	47	5
	96	-	2	20	1	1	2	-	-	-	25	1	-	-	520	40	71	26
	02	-	4	9	1	-	6	-	-	-	20	-	-	-	400	43	62	20
D	83	-	4	-	-	-	-	-	-	-	4	-	-	-	266		4	
	89	-	5	1	-	-	-	-	-	-	6	-	-	-	400		6	
	96	-	2	-	-	1	1	-	-	-	1	-	-	3	80		4	
	02	-	1	4	-	-	3	-	-	-	5	-	-	3	160		8	
X	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	20		1	
	02	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'83		50%			14%			00%			+ 7%							
'89		93%			07%			00%			-40%							
'96		20%			77%			10%			- 7%							
'02		18%			79%			11%										
Total Plants/Acre (excluding Dead & Seedlings)												'83	932	Dec:	29%			
												'89	999		40%			
												'96	600		13%			
												'02	560		29%			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Symphoricarpos oreophilus																		
S	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	89	-	-	-	1	-	-	-	-	-	1	-	-	-	66		1	
	96	-	-	-	1	-	-	-	-	-	1	-	-	-	20		1	
	02	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
Y	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	5	-	-	4	-	-	-	-	-	9	-	-	-	180		9	
	02	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
M	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	96	5	1	-	13	-	-	-	-	-	19	-	-	-	380	23	19	
	02	10	-	-	13	-	-	3	-	-	26	-	-	-	520	27	26	
D	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	02	1	-	-	-	-	-	-	-	-	-	-	-	1	20		1	
X	83	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	02	-	-	-	-	-	-	-	-	-	-	-	-	-	20		1	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'83		00%			00%			00%										
'89		00%			00%			00%										
'96		04%			00%			00%			- 4%							
'02		00%			00%			04%										
Total Plants/Acre (excluding Dead & Seedlings)												'83	0	Dec:	0%			
												'89	0		0%			
												'96	560		0%			
												'02	540		4%			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Tetradymia canescens																		
Y	83	3	-	-	-	-	-	-	-	-	3	-	-	-	200		3	
	89	2	-	-	-	-	-	-	-	-	2	-	-	-	133		2	
	96	4	-	-	1	-	-	-	-	-	5	-	-	-	100		5	
	02	2	-	-	-	-	-	-	-	-	2	-	-	-	40		2	
M	83	3	-	-	-	-	-	-	-	-	3	-	-	-	200	12	12	3
	89	1	-	-	-	-	-	-	-	-	1	-	-	-	66	6	10	1
	96	2	-	-	-	1	-	-	-	-	3	-	-	-	60	8	12	3
	02	5	1	-	-	-	-	-	-	-	6	-	-	-	120	8	16	6
D	83	1	-	-	-	-	-	-	-	-	1	-	-	-	66			1
	89	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	02	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
		'83			00%			00%			00%			-57%				
		'89			00%			00%			00%			-20%				
		'96			13%			00%			00%			+ 0%				
		'02			13%			00%			00%							
Total Plants/Acre (excluding Dead & Seedlings)												'83	466	Dec:	14%			
												'89	199		0%			
												'96	160		0%			
												'02	160		0%			